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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,735	01/07/2004	Shyam Suri	CISCP845	4738
54406	7590	06/30/2006	EXAMINER	
AKA CHAN LLP / CISCO 900 LAFAYETTE STREET SUITE 710 SANTA CLARA, CA 95050			CHANG, RICHARD	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/752,735		SURI, SHYAM	
	<b>Examiner</b>		<b>Art Unit</b>	
	Richard Chang		2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04/06/2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-31 is/are rejected.
- 7) ☒ Claim(s) 5-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, filed on 04/06/2006, have been fully considered but are moot in view of the new ground of rejection.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,14,19,25,30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent application publication No. US 2002/0150041 A1 ("Reinshmidt et al.") in view of US patent application publication No. US 2003/0204619 A1 ("Bays").

Regarding claims 1,14,19,25,30 and 31, Reinshmidt et al. teach a method (most commonly in a software implementation) for detecting a forwarding problem within an autonomous system (12), the autonomous system (12) having a plurality of nodes including a source node (A2), an intermediate node (C...), and a destination node (B2) (See Fig. 1), comprising:

initiating a message (initiating a ping) from the source node (A2 in autonomous system 12), the message being arranged to be sent to a message destination that is an external address (11a) that is not an address located within the autonomous system (12),

forwarding the message from the source node (A2) along a path (C,D,...), the path being arranged to pass from the source node (A2) to the external address (11a) via the intermediate node (C,D,...) and the destination node (B2 in autonomous system 12),

receiving the message on the destination node (B2 in autonomous system 12), wherein a portion of the path (C,D,...) between the source node (A2 in autonomous system 12) and the destination node (B2 in autonomous system 12) is a first path segment (14), and

initiating a response (target reply for pin message) from the destination node (B2 in autonomous system 12), the response being arranged to be sent along the first path segment (14) from the destination node (B2 in autonomous system 12) to the source node (A2 in autonomous system 12), wherein the response (for pingmessage) is arranged (implicitly) to indicate that the intermediate node (C,D,...) does not have a forwarding problem (See Fig. 1, page 5, paragraph [0073] - page 6, paragraph [0074]),

wherein the path is a best path between the source node (A2 in autonomous system 12) and the external address (11a) (See Fig. 1, page 8, paragraph [0101]), and

wherein a number of nodes through which the path segment passes between the source node and the destination node as an indication (field in packet) is stored in the message (See Fig. 14, page 10, paragraph [0135] -[0142]).

Reinshmidt et al. teaches substantially all the claimed invention but did not disclose expressly the particular application involving limitations of "removing the message from the path at the destination node".

Bays teaches a method, apparatus and system facilitating determination based on the network path metrics and removing the message from the path at the destination node by terminate the probing sequence at last intermediate system in a given path in an autonomous system (80) (See Fig. 2, page 7-8, paragraph [0074-0075]).

A person of ordinary skill in the art would have been motivated to employ Bays in Reinshmidt et al. in order to obtain a software based method for optimizing a forwarding path within an autonomous and to take advantage of terminating the probing sequence at last intermediate system in a given path in an autonomous system in claims 1, 14, 19, 25, 30 and 31.

The suggestion/motivation to do so would have been to terminate the probing sequence at last intermediate system in a given path in an autonomous system, as suggested by Bays in page 7-8, paragraph [0074-0075]. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Bays with the Reinshmidt et al. to obtain the inventions specified in claims 1, 14, 19, 25, 30 and 31.

4. Claims 2-4, 7-13, 15-18, 20-24 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent application publication No. US 2002/0150041 A1 ("Reinshmidt et al.") in view of US patent application publication No. US 2003/0204619

A1 ("Bays") and further in view of US patent application publication No. US 2003/014105 A1 ("Desineni et al.").

Regarding claim 8, as discussed above, Reinshmidt et al. and Bays teach substantially all the claimed invention but did not disclose expressly the particular application involving limitations of "determining whether a response to the message is received from the destination node and initiating a process to identify a source of the forwarding problem when it is determined that the response to the message is not received from the destination node".

Desineni et al. teaches a method, apparatus obtaining information about paths terminating at a subject node for packets wherein source node (200) determining whether a response to the message (trace reply) is received from the destination node (204) and initiating a process (retransmitting request via neighbor nodes via a path) to identify a source of the forwarding problem when it is determined that the response to the message is not received (timed out) from the destination node (204) (See Fig. 2, page 3, paragraph [0027]).

A person of ordinary skill in the art would have been motivated to employ Desineni et al. in Reinshmidt et al. and Bays in order to obtain a software based method for optimizing a forwarding path within an autonomous and to take advantage of source node determining whether trace reply is received from the destination node and initializing a request via neighbor nodes via a path to identify a source of the forwarding problem when it is determined that the response to the message is timed out from the destination node in claim 8.

The suggestion/motivation to do so would have been to determine at source node whether trace reply is received from the destination node and initializing a request via neighbor nodes via a path to identify a source of the forwarding problem when it is determined that the response to the message is timed out from the destination node, as suggested by Desineni et al. in page 3, paragraph [0027]. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Desineni et al. with the Reinshmidt et al. and Bays to obtain the inventions specified in claim 8.

Regarding claims 2, 15, 22 and 26, these claims have limitation that is similar to those of claims 1, 14, 19 and 25 and Reinshmidt et al. teach that the external address is substantially specified in the message as the message destination (See page 2, paragraph [0025]), thus it is rejected with the same rationale applied against claims 1, 14, 19 and 25 above.

Regarding claims 3, 16, 23 and 27, these claims have limitation that is similar to those of claims 1, 14, 19 and 25 and Reinshmidt et al. teach that the source node is a first edge node (A2) of the autonomous system (12) and the destination node is a second edge node (B2) of the autonomous system (12) (See Fig. 1, page 5, paragraph [0073]), thus it is rejected with the same rationale applied against claims 1, 14, 19 and 25 above.

Regarding claims 4, 13 and 24, these claims have limitation that is similar to those of claims 1, 8 and 19 and Reinshmidt et al. teach the steps of  
identifying the path (HOP addresses 1..n),

determining a number of nodes (hops) through which the path segment passes between the source node and the destination node, and

storing an indication in the message (header), the indication being arranged to indicate a number of nodes through which the path segment passes between the source node and the destination node (See Fig. 13, page 9-10, paragraph [0116-0133]), thus it is rejected with the same rationale applied against claims 1, 8 and 19 above.

Regarding claim 7, this claim has limitation that is similar to those of claim 1 and Reinshmidt et al. teach that the path is a best path between the source node and the external address (See page 8, paragraph [0101]), thus it is rejected with the same rationale applied against claim 1 above.

Regarding claims 9-10 and 20-21, these claims have limitation that is similar to those of claims 8 and 19 and Reinshmidt et al. teach that sending a new message from the source node to the intermediate node along the path the new message being of substantially the same type as the message and the message is a traceout (ping) message (See page 2, paragraph [0025]), thus it is rejected with the same rationale applied against claims 8 and 19 above.

Regarding claim 11, this claim has limitation that is similar to those of claim 9 and Reinshmidt et al. teach that the external address is substantially specified in the message as the message destination (See page 2, paragraph [0025]), thus it is rejected with the same rationale applied against claim 9 above.

Regarding claim 12, this claim has limitation that is similar to those of claim 9 and Reinshmidt et al. teach that the source node is a first edge node (A2) of the



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autonomous system (12) and the destination node is a second edge node (B2) of the autonomous system (12) (See Fig. 1, page 5, paragraph [0073]), thus it is rejected with the same rationale applied against claim 9 above.

Regarding claims 17-18 and 28-29, these claims have limitation that is similar to those of claims 14 and 25, thus it is rejected with the same rationale applied against claims 14 and 25 above.

### ***Allowable Subject Matter***

5. Claims 5-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if no art rejection can be applied.

### ***Reason for indicating Allowable Subject Matter***

6. The following is an examiner's statement of reasons for allowance:

The prior art along or in combination fails to teach or make obvious the following limitations:

"wherein forwarding the message from the source node along a path includes receiving the message on a first node of the plurality of nodes, the first node being arranged to substantially alter the indication to indicate a number of nodes through which the path segment passes between the first node and the destination node" as recited in the dependent claim 5.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



rkc

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SUPERVISORY PATENT EXAMINER